

REMARKS

Reconsideration of this application in light of the present amendment and remarks is respectfully requested.

Claims 1-12 and 27 have been rejected.

Claims 13-26 were previously canceled.

Claims 1, 5, 6 and 27 have been amended.

Claim 20 has been reinstated as new claim 28.

Claims 29-33 have been added.

Claims 1-12 and 27-33 are pending in this application.

Rejection under 35 U.S.C. §103

Claims 1-6, 10-12 and 27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Williams et al (US 5883891, hereinafter “Williams”) in view of Ernst (“Network Mobility Support in IPv6”, a PhD thesis to the Dept. of Mathematics and Computer Science at the Universite Joseph Fourier, France, October 29, 2001), hereinafter “Ernst”. This rejection is respectfully traversed.

Claim 1 has been amended and rearranged for clarity and to specify the actions of particular nodes. In particular, a second communication node is defined that determines a care-of route. Support for this can be found on page 30 lines 12-14, describing Fig. 10. The care-of route includes a list of a plurality of intermediary addresses between said data network and said second communication node, the plurality of intermediary addresses comprising an address of mobile routers, as was stated previously in the claim. In addition, the second communication node sends a route message (care-of addresses) to the first communication node without any explicit request for said route message being received, although an explicit request is an option. Support for this can be found on page 22 lines 29-32, page 32 lines 8-25, and page 33 lines 1-11 (describing Fig. 13) which describes the periodic (thus without explicit request) sending of route message (extended binding update) from a second node (in a mobile network) to a first node (its correspondent node – CN).

From a technical standpoint it is clear that Williams and applicants’ invention address two different problems, and that the details of the proposed solutions are also different. Williams looks into improving quality of VoIP communications by using data redundancy and packet

replication and delivery along multiple paths (to better accommodate potential packet loss). Whereas, applicants' invention optimizes the routing path (number of hops) towards nodes located behind (one or more) mobile routers. Williams uses the "echo route" packet to build the intermediate address path from the source node to the destination node. However, Williams does not suggest or disclose intermediates nodes in the path being mobile routers.

In Williams, the "echo route" packet (used to compute the list of intermediate addresses) is sent by the first node to the second node (i.e. a request message...which is dynamically populated with intermediate addresses as it is routed towards the second node). The list of intermediate addresses (forming the path) is only sent by the second node (destination node) to the first node (source node) in response to a request from the first node to the second node (see details of the "echo route" packet at the top of col. 8). This is clearly different from applicants' invention, where the route message (containing the care-of route) can be (and is typically) sent proactively from the second node to the first node (i.e. without any request).

Moreover, the method for computing the preferred path between Williams and applicants' invention are also different. In Williams, the first node will collect a list of possible paths to the second node associated with metrics (e.g. end-to-end delay) and will select the best path based on the metric. Note that Williams does not disclose any specific method to remove addresses from a received route to compute a path. On the other hand, applicants' invention discloses a method for the first node to compute the preferred path; possibly leading to the removal of some addresses of the care-of route received from the second node (see page 47 line 4 to page 50 line 30, referring to Fig. 30).

Ernst discloses mobile network routing which relies on the standard path reversal techniques where the first node receives addresses from a second node and just needs to reverse the list of addresses received to compute the path. Whereas, the path computation algorithm of the applicants' invention is different in the sense that; a) the list of addresses in the "route message" (i.e. binding update) sent to the first node does not need to be reversed; and b) all the information to compute the path from first to second node is not included in the received "route message", instead some additional information local to the first node is needed.

Moreover, Ernst has the same failing as Williams in that Ernst fails to suggest or disclose the second communication node the second communication node sends a route message (care-of address) to the first communication node without any explicit request for said route message

being received. Nor does Ernst provide a technique to optimize the routing path towards nodes located behind (one or more) mobile routers. Nor does Ernst suggest or disclose a first node that computes a preferred path; possibly leading to the removal of some addresses of the care-of route received from the second node. Accordingly, Ernst is missing the same several elements as distinguished for Williams above.

Accordingly, applicant respectfully submits that amended claim 1 is not anticipated by the cited art, and is therefore allowable.

Independent claim 27 has been amended to incorporate the same recitations as claim 1 in apparatus form, and is therefore deemed allowable as well for the same reasons.

Independent claim 28 (previously claim 20) has been added and incorporates similar recitations as claim 1, and is therefore deemed allowable as well for the same reasons.

Claim 6 has been amended to include a care-of address of the second communication node itself, if the second communication node is a mobile node. Support for this can be found on page 31 lines 14-17 (and Fig. 11) and page 36 line 28 to page 37 line 3. (where the “extended binding update” is equivalent to the route message of claim 1).

Claim 29 has been added to clarify that the second communication node sends the route message when it detects that a new communication is started with the first node, and

Claim 30 has been added to clarify that the second communication node sends the route message when it decides to trigger route optimization for an ongoing communication with the first node. Support for these claims can be found on page 51 line 26 to page 52 line 2, page 29 line 26 to page 30 line 4, page 31 lines 10-25, page 33 lines 25-27, page 34 lines 3-5, page 34 lines 11-13, and page 36 lines 1-3.

Claims 31 and 32 have been added to clarify that the second communication node sends the route message when it detects that its care-of route has changed, such as where the care-of route has changed due to the IP mobility of one or more of its upper mobile routers connecting it to the data network. Support for this can be found on page 22 lines 29-32 and page 32 lines 8-24 (describing Fig. 12 where the processing on the second node includes: receiving the new care-of route advertisement message from its mobile router, hence discovering a change in its own care-of route, and thus sending a route message towards its correspondent nodes (CN) to inform them about the new care-of route).

Claim 33 has been added to specify a method for computing the preferred path (i.e. "care-of source route"). Support for this can be found on page 47 line 4 to page 50 line 30, referring to Fig. 30, and is also covered in former claim 20 (new claim 28).

Moreover, claims 2-6, 10-12 and 29-33 are dependent on claim 1, incorporated herein, and are therefore allowable as well for the same reasons.

Therefore, applicant requests that this rejection be withdrawn.

Rejection under 35 U.S.C. §103

Claim 7 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Williams in view of Ernst, as applied to claim 5 above, and further in view of Inoue (US 6,587,882). This rejection is respectfully traversed.

Claim 7 is dependent on amended claim 1, incorporated herein and previously distinguished above, and is therefore deemed allowable as well for the same reasons.

Accordingly, it is respectfully submitted that this rejection has been overcome.

Rejection under 35 U.S.C. §103

Claims 8 and 9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Williams in view of Ernst, as applied to claim 5 above, and further in view of Baba et al (US 6,799,204). This rejection is respectfully traversed.

Claims 8 and 9 are dependent on amended claim 1, incorporated herein and previously distinguished above, and are therefore deemed allowable as well for the same reasons.

Accordingly, it is respectfully submitted that this rejection has been overcome.

The other references of record have been reviewed and applicant's invention is deemed patentably distinct and nonobvious over each taken alone or in combination.

For the foregoing reasons, applicants respectfully request that the above rejections be withdrawn.

Inasmuch as this amendment distinguishes all of the applicants' claims over the prior art references, for the many reasons indicated above, passing of this case is now believed to be in order. A Notice of Allowance is earnestly solicited.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any

claim, unless applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

In the event that the Examiner deems the present application non-allowable, it is requested that the Examiner telephone the Applicants' attorney at the number indicated below so that the prosecution of the present case may be advanced by the clarification of any continuing rejection or through an Examiner's amendment.

Authorization is hereby given to charge any fees necessitated by actions taken herein to Deposit Account 50-2117.

Respectfully submitted,
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